

S/N 10/826,967



PATENT

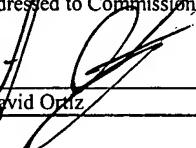
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	ROMEO, et al.	Examiner:	Unknown
Serial No.:	10/826,967	Group Art Unit:	1645
Filed:	April 16, 2004	Docket No.:	14233.4USU1
Title:	NOVEL GENES INVOLVED IN THE ESCHERICHIA COLI BIOFILM FORMATION AND USES THEREOF		

CERTIFICATE UNDER 37 CFR 1.10:

"Express Mail" mailing label number: EV 408490439 US
Date of Deposit: October 12, 2004

I hereby certify that this paper or fee is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Commissioner for Patents, Mail Stop Missing Parts, P.O. Box 1450, Alexandria, VA 22313-1450.

By: 
Name: David Ortiz

INFORMATION DISCLOSURE STATEMENT (37 C.F.R. § 1.97(b))

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

With regard to the above-identified application, the items of information listed on the enclosed Form 1449 are brought to the attention of the Examiner.

This statement should be considered because it is submitted before the mailing date of a first Office Action on-the-merits. Accordingly, no fee is due for consideration of the items listed on the enclosed Form 1449.

In accordance with 37 C.F.R. §1.98(a)(2), a copy of each document or other information listed on the enclosed Form 1449 is provided.

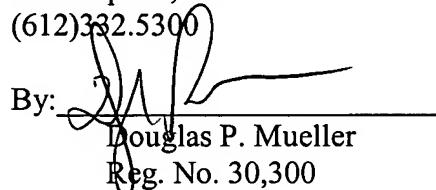
No representation is made that a reference is "prior art" within the meaning of 35 U.S.C. §§ 102 and 103 and Applicants reserve the right, pursuant to 37 C.F.R. § 1.131 or otherwise, to establish that the reference(s) are not "prior art." Moreover, Applicants do not represent that a reference has been thoroughly reviewed or that any relevance of any portion of a reference is intended.

Consideration of the items listed is respectfully requested. Pursuant to the provisions of M.P.E.P. 609, it is requested that the Examiner return a copy of the attached Form 1449, marked as being considered and initialed by the Examiner, to the undersigned with the next official communication.

Please charge any additional fees or credit any overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903
(612)332.5300

By: 
Douglas P. Mueller
Reg. No. 30,300

Dated: October 12, 2004

DPM/pjk



Form PTO-1449 U.S. DEPARTMENT OF COMMERCE
(Rev. 2-32) PATENT AND TRADEMARK OFFICE

Attorney Docket No.
42623-0044

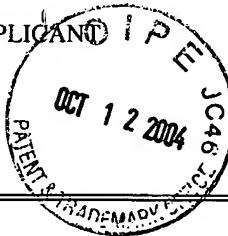
Serial No.
10/826,967

Applicant: Tony Romeo et al.

Filing Date
April 16, 2004

Group Art
Unit:

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use Several Sheets if Necessary)



U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate

FOREIGN PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Country	Class	Sub-Class	Yes	Translation
						No	
	WO93/05182						

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Alavi, Mohammad and Belas, R. "Surface Sensing, Swarmer Cell Differentiation, and Biofilm Development" <u>Methods in Enzymology</u> Vol 336, p. 29-40, 2001
		Anderson, Lisa A., McNairn, E., Leubke, T., Pau, R., Boxer, D. "ModE-Dependent Regulation of the Molybdenum Cofactor Operon <i>moa</i> in <i>Escherichia coli</i> " <u>Journal of Bacteriology</u> p. 7035-7043, December 2000

EXAMINER

DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Balaban, N., Gov Y., Bitler, A., Boelaert, J.R. "Prevention of <i>Staphylococcus aureus</i> biofilm on dialysis catheters and adherence to human cells", <u>Kidney Int.</u> Vol 63 p.340-345, January 2003
		Barua, Soumitra, Yamashino, T., Hasegawa, T., Yokoyama, K., Torii, K., Ohta, M. "Involvement of surface polysaccharides in the organic acid resistance of Shiga toxin-producing <i>Escherichia coli</i> 0157:H7" <u>Molecular Microbiology</u> Vol. 43, p. 629-640, 2002
		Belas, Robert, Schneider, R., Melch, M., "Characterization of <i>Proteus mirabilis</i> Precocious Swarming Mutants: Identification of <i>rsbA</i> , Encoding a Regulator of Swarming Behavior" <u>Journal of Bacteriology</u> p. 6126-6139, December 1998
		Costerton, J.W., Stewart, S.S. and Greenberg, E.P. "Bacterial Biofilms: A Common Cause of Persistent Infections" <u>Science</u> Vol 284 p.1318-1322, May 21, 1999
		Costerton, J.W. and Lewandowski, Z. "Microbial Biofilms" <u>Annual Review Microbiology</u> p. 711-745, 1995
		Costerton, J.W., Lewandowski, Z., DeBeer, D., Caldwell, D., Korber, D. and James, G. "Biofilms, the Customized Microniche" <u>Journal of Bacteriology</u> , p. 2675-2679, April 1994
		Costerton, J.W., Cheng, K.J., Geesey, G.G., Ladd, T.I., Nickel, J.C., Dasgupta, M and Marrie, T.J. "Bacterial Biofilms in Nature and Disease" <u>Annual Review Microbiology</u> p.435-464, 1987
		Cramton, Sarah E., Gerke, C., Schnell, N., Nichols, W., Gotz, F. "The Intercellular Adhesion (<i>ica</i>) Locus Is Present in <i>Staphylococcus aureus</i> and is Required for Biofilm Formation" <u>Infection and Immunity</u> p. 5427-5433, October 1999
		Danese, Paul N., Pratt, L.A. and Kolter, R. "Biofilm Formation as a Developmental Process" <u>Methods In Enzymology</u> Vol 336 p.19-26, 2001
		Davey, Mary Ellen and O'Toole, G.A. "Microbial Biofilms: from Ecology to Molecular Genetics" <u>Microbiology and Molecular Biology Reviews</u> p. 847-867, December 2000
		Dover, Nir and Padan, E., "Transcription of <i>nhaA</i> , the Main Na/H ⁺ Antiporter of <i>Escherichia coli</i> , Is Regulated by Na ⁺ and Growth Phase" <u>Journal of Bacteriology</u> p. 644-653, January 2001
		Genevaux, Pierre, Baudia, P., Dubow, M.S. and Oudega, B. "Identification of Tn10 Insertions in the <i>dsbA</i> gene affecting <i>Escherichia coli</i> biofilm formation" <u>FEMS Microbiology Letters</u> p.403-409, 1999

EXAMINER

DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Genevaux, Pierre, Muller, S., and Bauda, P. "A rapid screening procedure to identify mini-Tn10 insertion mutants of <i>Escherichia coli</i> K-12 with altered adhesion properties" <u>FEMS Microbiology Letters</u> p. 27-30, 1996 (abstract)
		Gon, Stephanie, Patte, J., Mejean, V., Iobbi-nivol, C. "The <i>torYZ</i> (<i>yeCK bisZ</i>) Operon Encodes a Third Respiratory Trimethylamine N-Oxide Reductase In <i>Escherichia coli</i> " <u>Journal of Bacteriology</u> p. 5779-5786, October 2000
		Huber, Birgit, Riedal, K., Kothe, M., Givskov, M., Molin, S. and Eberl, L. "Genetic Analysis of functions involved in the late stages of biofilm development in <i>Burkholderia cepacia</i> H111" <u>Molecular Microbiology</u> p.411-426, 2002
		Jackson, Debra W., Suzuki, K., Oakford, L., Simecka, J.W., Hart, M.E. and Romeo, T. "Biofilm Formation and Dispersal under the Influence of the Global Regulator <i>CsrA</i> of <i>Escherichia coli</i> " <u>Journal of Bacteriology</u> p. 290-301, January 2002
		<u>Biology</u> , Neidhardt, F. C., Curtiss, III R., Ingraham, J. L., Lin, E. C. C., Low, K. B., Magasanik, B., et. al., Vol 1, 2 nd ed., p.1064-1072 ASM Press, 1996
		Kleckner ,N., Bender, J., and Gottesman, S. "Uses of Transposons with Emphasis on Tn10" <u>Methods in Enzymology</u> , Vol. 204, p. 139-179, Academic Press, 1991
		Kolter, Roberto and Losick, R. "One for All and All for One" <u>Science</u> Vol 280, p. 226-227, April 10, 1998
		Kwon, Ohsuk, Georgellis, D., Lynch, A., Boyd, D., Lin, E. "The ArcB Sensor Kinase of <i>Escherichia coli</i> : Genetic Exploration of the Transmembrane Region" <u>Journal of Bacteriology</u> , p. 2960-2966, May 2000
		Lamont, Richard J. and Bryers, James D. "Biofilm-Induced Gene Expression and GeneTransfer" <u>Methods in Enzymology</u> , Vol.336, p. 84-94, Academic Press, 2001
		Landini, Paolo, Zehnder, A. "The Global Regulatory <i>hns</i> Gene Negatively Affects Adhesion to Solid Surfaces by Anaerobically Grown <i>Escherichia coli</i> by Modulating Expression of Flagellar Genes and Lipopolysaccharide Production" <u>Journal of Bacteriology</u> p. 1522-1529, March, 2002
		Lewis, Kim "Riddle of Biofilm Resistance" <u>Antimicrobial Agents and Chemotherapy</u> p. 999-1007, April 2001

EXAMINER

DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Liu, M.Y., G. Gui,, B. Wei, J.F. Preston III, L. Oakford, U. Yuksel, D.P. Giedroc, and T. Romeo. 1997. The RNA molecule CsrB binds to the global regulatory protein CsrA and antagonizes its activity in <i>Escherichia coli</i> <i>J. Biol. Chem.</i> 272:17502-17510.
		Matsushika, Akinori, Mizuno, T. "A Dual-Signaling Mechanism Mediated by the ArcB Hybird Sensor Kinase Containing the Histidine-Containing Phosphotransfer Domain in <i>Escherichia coli</i> " <i>Journal of Bacteriology</i> p. 3973-3977, August 1998
		Miller, J. H. <u>Experiments in Molecular Genetics</u> , Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1972
		Mireles, Joe Robert, Toguchi, A., Harshey, R. "Salmonella enterica Serovar <i>Typhimurium</i> Swarming Mutants with Altered Biofilm-Forming Abilities: Surfactin Inhibits Biofilm Formation" <i>Journal of Bacteriology</i> ,p. 5848-5854, October 2001
		O'Toole, George A. and Kolter, R. "Initiation of biofilm formation in <i>Pseudomonos Flourescens</i> WCS365 proceeds via multiple, convergent signalling pathways: A Genetic analysis" <i>Molecular Microbiology</i> p.449-461, 1998
		Otto, Karen, Norbeck, J., Larsson, T., Karlsson, K., Hermansson, M. "Adhesion of Type I-Fimbriated <i>Escherichia coli</i> to Abiotic Surfaces Leads to Altered Composition of Outer Membrane Proteins" <i>Journal of Bacteriology</i> p. 2445-2453, April 2001
		Otto, Karen and Silhavy, T. J. "Surface sensing and adhesion of <i>Escherichia coli</i> Controlled by the CPX-signaling pathway" <i>PNAS</i> Vol. 99, p. 2287-2292, February 2002
		Page, Frederic, Altabe, S., Hugouvieux-Cotte-Pattat, N., Lacroix, J., Robert-Baudouy, J., Bohin, J. "Osmoregulated Periplasmic Glucan Synthesis Is Required for <i>Erwinia chrysanthemi</i> Pathogenicity" <i>Journal of Bacteriology</i> p. 3134-3141, May 2001
		Palmer, Robert J. and White, D.C. "Developmental biology of biofilms: implications for Treatment and control" <i>Trends in Microbiology</i> Vol 5, No.11, p.435- 440, November 1997 (abstract)
		Potera, Carol "Forging a Link Between Biofilms and Disease" <i>Science</i> Vol 283 p.1837-1839, March 19, 1999
		Pratt, Leslie and Kolter, R. "Genetic analysis of <i>Escherichia coli</i> biofilm formation: Roles of flagella, motility, chemotaxis and type I pili" <i>Molecular Microbiology</i> Vol. 30, p.285-293, 1998

EXAMINER

DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Prigent-Combaret, Claire, Prensier, G., Thi, T.T.L., Vidal, O., Lejeune, P., and Dorel, C. "Developmental pathway for biofilm formation in curli-producing <i>Escherichia coli</i> strains: role of flagella, curli and colonic acid" <u>Environmental Microbiology</u> Vol. 2, p. 450-464, 2000
		Prigent-Combaret, Claire, Vidal, O., Dorel, C. and Lejeune, P. "Abiotic Surface Sensing and Biofilm-Dependent Regulation of Gene Expression in <i>Escherichia coli</i> " <u>Journal of Bacteriology</u> p.5993-6002, October 1999
		Romeo, Tony "Global regulation by the small RNA-binding protein CsrA and the non-Coding RNA molecule CsrB" <u>Molecular Microbiology</u> p.1321-1330, 1998
		Romeo, T., J. Black, and J. Preiss. 1990. Genetic regulation of glycogen biosynthesis in <i>Escherichia coli</i> : in vivo effects of the catabolite repression and stringent response systems in glg gene expression. <i>Curr. Microbiol.</i> 21:131-137.
		Romeo, T., M. Gong, M.Y. Liu, and A.-M. Brun-Zinkernagel. 1993. Identification and molecular characterization of <i>csrA</i> , a pleiotropic gene from <i>Escherichia coli</i> that affects glycogen biosynthesis, gluconeogenesis, cell size, and surface properties. <i>J. Bacteriol.</i> 175:4744-4755.
		Sauer, Karin, Camper, A., "Characterization of Phenotypic Changes in <i>Pseudomonas Putida</i> in Response to Surface-Associated Growth" <u>Journal of Bacteriology</u> , p. 6579-6589, November 2001
		Sauer, Karin, Camper, A., Ehrlich, G., Costerton, J., Davies, D., " <i>Pseudomonas aeruginosa</i> Displays Multiple Phenotypes during Development as a Biofilm" <u>Journal of Bacteriology</u> p. 1140-1154, February 2002
		Shi, Wenyuan, Zhou, Y., Wild, J., Adler, J., Gross, C., "DnaK, DnaJ, and GrpE Are Required for Flagellum Synthesis in <i>Escherichia coli</i> " <u>Journal of Bacteriology</u> p. 6256-6263, October 1992
		Stanley, Nicola, Britton, R., Grossman, A. "Identification of Catabolite Repression as a Physiological Regulator of Biofilm Formation by <i>Bacillus subtilis</i> by use of DNA Microarrays" <u>Journal of Bacteriology</u> p. 1951-1957, March 2003
		Takeda, Shin-Ichiro, Fujisawa, Y., Matsubara, M., Aiba, H., Mizuno, T. "A novel feature of the multistep phosphorelay in <i>Escherichia coli</i> : a revised model of the RcsC→YojN→RcsB signalling pathway implicated in capsular synthesis and swarming behaviour" <u>Molecular Microbiology</u> Vol. 40(2), p. 440-450, 2001

EXAMINER

DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Toesca, Isabelle, Perard, C., Bouvier, J., Gutierrez, C., Conter, A. "The transcriptional Activator NhaR is responsible for the osmotic induction of <i>osmC_{p1}</i> , a promoter of the stress-inducible gene <i>osmC</i> in <i>Escherichia coli</i> " <u>Microbiology</u> , Vol. 147, p. 2795-2803, 2001
		Wei, Bangdong, Brun-Zinkernagel, A., Simecka, J., Prub, B., Babitzke, P., Romeo, T., "Positive regulation of motility and flhDC expression by the RNA-binding protein CsrA of <i>Escherichia coli</i> " <u>Molecular Microbiology</u> Vol. 40(1), p. 245-256, 2001
		Watnick, Paula and Kolter, R. "Biolfilm, City of Microbes" <u>Journal of Bacteriology</u> p. 2675-2679, May 2000
		Whiteley, M., Bangera, M., Bumgarner, R., Parsek, M., Teitzel, G., Lory, S., Greenberg, E. P. "Gene expression in <i>Pseudomonas</i> Biofilms" <u>Nature</u> Vol. 413 p. 860-864, 2001
		Yang, Honghui, Liu, M., Romeo, T., "Coordinate Genetic Regulation of Glycogen Catabolism and Biosynthesis in <i>Escherichia coli</i> via the CsrA Gene Product" <u>Journal of Bacteriology</u> p. 1012-1017, February 1996
EXAMINER		DATE CONSIDERED

* Examiner: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.